

CLAIMS:

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- 1 A droplet generator for a continuous stream ink jet print head comprising: an elongate cavity (13) for containing the ink; nozzle orifices (7) in a wall (10) of said cavity (13) for passing ink from the cavity (13) to form jets, said nozzle orifices (7) extending along the
- 5 length of said cavity (13); and actuator means (3) disposed on the opposite side of said cavity (13) to said wall (10) for vibrating the ink in said cavity (13) such that each said jet breaks up into ink droplets, in operation of said generator a standing wave being present in the ink in said cavity (13), characterised in that the cross-sectional area of said cavity (13) varies along its
- 10 length in a manner so as to tailor the form of said standing wave in the cavity (13) such that each said jet breaks up into ink droplets at a respective predetermined distance from said wall (10) of the cavity (13).
2. A generator according to claim 1 wherein the tailoring of the form of said standing wave is such that each said jet breaks up into ink droplets at substantially the same predetermined distance from said wall (10) of the cavity (13).
- 15 3. A generator according to claim 2 wherein the cross-sectional area of the cavity (13) varies cyclically along its length between minimum (81) and maximum (83) values, said cross-sectional area having a minimum value (81) whereat said standing wave has a region of low acoustic pressure at the nozzle orifices (7), said cross-sectional area having a maximum value (83) whereat said standing wave has a region of high acoustic pressure at the nozzle orifices
- 20 (7).
4. A generator according to claim 3 wherein said cross-sectional area varies sinusoidally along its length (Figs. 3, 4 and 9).
5. A generator according to claim 2 or claim 3 or claim 4 wherein said cavity (13) has a generally triangular cross-section (Figs. 3 and 4).

6. A generator according to claim 2 or claim 3 or claim 4 wherein said cavity (13) has a generally rectangular cross-section (Fig. 9).
7. A method of operating a generator according to any one of claims 2 to 6 wherein the parameters of the operation of the generator are permitted to stray such that said cavity (13)  
5 operates over a range extending substantially all the way between two successive resonances in the length of the cavity (13).
8. A method according to claim 7 wherein said parameters of the operation permitted to stray are ink composition and temperature.
9. A method of operating a generator according to any one of claims 2 to 6 wherein said  
10 cavity (13) operates at substantially midway between two successive resonances in the length of the cavity (13).